

Notice of Allowability

Application No.

10/701,200

Examiner

Sheridan L. Swope

Applicant(s)

KOFFAS ET AL.

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to February 4, 2005.
2. ☒ The allowed claim(s) is/are 28.
3. ☒ The drawings filed on 04 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>1103</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Applicant's election of Group II, Claims 28, 29, 33, 35 and 36, in their response of February 4, 2005, is acknowledged. It is acknowledged that applicants have cancelled Claim 29 and amended Claims 35 and 36. Claims 28, 33, 35, and 36 are pending and are hereby considered.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Specification

Amend the title to: Production of feed using a denitrifying methanotrophic bacterial strain.

Replace the first sentence of the specification with: This application is a divisional of US Application SN 09/934,868, filed August 22, 2001, which issued as U.S. patent 6,689,601 on January 22, 2004, which claims the benefit of U.S. Provisional Application No. 60/229,858, filed September 1, 2000.

Claims

Cancel Claims 33, 35, and 36.

Replace Claim 28 with:

28. A method for the production of cellular biomass comprising protein, carbohydrates, and pigment comprising the steps of:

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- (a) providing a high growth methanotrophic bacterial strain which:
 - (1) grows on a C1 carbon substrate selected from the group consisting of methane and methanol; and
 - (2) comprises a functional Embden-Meyerhof carbon pathway, said pathway comprising a gene encoding a pyrophosphate dependent phosphofructokinase enzyme as set forth in SEQ ID NO: 6;
- (b) contacting the bacterial strain of (a) with a C1 carbon substrate in a suitable medium for a time sufficient to permit the expression and accumulation of the cellular biomass; and
- (c) optionally recovering the cellular biomass.

Authorization for this examiner's amendment was given in a telephone interview with Neil Feltham on April 1, 2005.

Allowable Subject Matter

Claim 28 is allowed.

The following is an examiner's statement of reasons for allowance:

The elected claim, Claim 28, is limited to a method for the production of cellular biomass, comprising protein, carbohydrates and pigment, using a methanotrophic bacterial strain comprising a gene encoding the pyrophosphate-dependent phosphofructokinase set forth by SEQ ID NO: 6. Said method is free of the prior art. The utility of said method in the production of cellular biomass is credible based on the disclosure of the specification, wherein a methanotrophic bacterial strain expressing the protein of SEQ ID NO: 6 produces protein (Example 11), carbohydrates (Example 10), and pigment (Example 1). Furthermore, the

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function of the protein set forth by SEQ ID NO: 6 as a pyrophosphate-dependent phosphofructokinase is credible based on 57% homology to the pyrophosphate-dependent phosphofructokinase of Ladrer et al, 1991 and, specifically, the conservation of the ATP binding site residues, G⁴², Y⁷⁴, R¹²⁰, D¹⁵¹, and D¹⁵², and the fructose-6-phosphate binding residues, T¹⁷⁹, D¹⁸¹, D¹⁸³, R²¹⁶, M²²⁴, G²²⁵, R²²⁶, H³²¹, and L³²⁴ (SEQ ID NO: 6 numbering).


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Sheridan Lee Swope, Ph.D.


REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP 1800
1600